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Box with a supplementary raisable panel printable on both sides.

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Description

This invention relates to a box having a supplementary panel rotatable about a creasing line and projecting from the box. Traditional boxes constructed from a single sheet of flexible material (usually cardboard) have a polygonal cross-section which is sometimes triangular but is more often quadrangular, rectangular or square. They are defined by main panels separated from each other by parallel creasing lines, plus tabs and side panels for closing the box which project laterally from the main panels and are separated from these by longitudinal creasing lines perpendicular to those which separate the main panels from each other. From one main panel there projects a flap which is separated from it by a creasing line parallel to those which separate the main panels from each other, and is glued to the inside of that main panel which is furthest from it on the sheet from which the box is formed.

A box of traditional structure, for example of quadrangular cross-section, has four main panels, on the outer surface of which writing or drawings can be reproduced. The surface of these panels is often insufficient to hold all the writing which it would be desirable to reproduce on them. Illustrative leaflets must therefore be used, these being inserted into the box together with the products to be contained in the box.

Increasingly frequently such boxes contain products to be sold in various countries of different languages. There is insufficient space on traditional boxes, especially if of small size (such as boxes which are to contain pharmaceutical specialities), to print the same instructions in more than one language, so making it necessary to use different boxes for countries of different languages.

In order to overcome this serious drawback the EP-A-0 234 079 and the GB-B-2104048 have proposed boxes having substantially the shape of traditional boxes but differing from these by comprising on the outside of the structure of the traditional box a rotatable panel having two supplementary surfaces additional to the surfaces of the constituent panels of the traditional box, and on which there can be reproduced further writing or drawings which could not be reproduced on a box of known type.

Such boxes with additional printable surfaces are obtained from a single sheet of cut and punched flexible material.

In the EP-A-0234079 and in the GB-B-2104048 the rotatable supplementary panel extends from one of the main panels of the box and is separated therefrom by a fold line which overlies an uninterrupted fold line separating said main panel from the main panel adjacent thereto upon which the supplementary panel is folded and glued. Since the cross-sections of the formed boxes must be rectangular in order to the machinable, the mentioned prior art

boxes suffer of the following unacceptable drawbacks: a) if the supplementary panel is fixedly glued on the main panel upon which it is folded, then, during erection of the box, either the supplementary panel will be deformed to take the shape of an arch or the folding line separating the supplementary panel from the main panel from which it extends will be broken: indeed, in order to facilitate detachment of the supplementary panel, both cited prior patent specifications provide perforations or holes in correspondence of the fold line between the supplementary panel and the main panel from which it extends. In such a case, however, the supplementary panel can be easily accidentally detached away, unless the complete carton is wrapped with an envelope or a covering, and; b) if the supplementary panel is retained upon the main panel on which it is superimposed by means of a peelable adhesive (as mentioned in the GB-B-2104048) which enables the supplementary panel to slide over and along the underlying main panel during erection of the carton, the carton will have to be glued in two different steps and by making use of two different adhesive, one being of the peelable type and the other of a very resistant non removable type.

The present invention aims to overcome all the above mentioned drawbacks by providing a box having a supplementary panel firmly connected to the main panel from which it extends and also firmly glued to the main panel upon which it is superimposed.

These objects are attained by a box formed from a single sheet of flexible punched and cut material, the box having a substantially polygonal cross-section with at least three consecutive main panels and a flap projecting from one of these, said panels and the flap being separated from each other along parallel creasing lines, the flap being glued to the inside of that main panel which on the sheet forming the box is furthest from that main panel from which said flap projects, the box comprising tabs and side panels for closing the box which project laterally from the main panels and are connected to said main panels along creasing lines perpendicular to the creasing lines which separate the main panels and the flap from each other, a supplementary panel projecting from said furthest main panel and separated from it along a creasing line which is parallel to the creasing lines which separate the main panels from each other, and is superposed on the creasing line which separates said flap from the main panel from which said flap projects, the supplementary panel being rotatable about its own creasing line between a position in which the supplementary panel rests on the main panel from which said flap projects, and a position raised therefrom, characterized in that elongate holes are provided in the flexible material sheet along said creasing lines separating said supplementary panel and respectively said flap from the respective main

panels from which they extend, said holes delimiting connecting portions which connect said flap and the panel to the relative main panels respectively, the holes provided along one creasing line being offset from those of the other creasing line and their length being at least equal to the width of the connecting portions on which said holes are superposed.

Again preferably, a plurality of said holes are provided to delimit a plurality of said connecting portions or appendices.

The flexible material sheet from which the box is formed is generally of cardboard.

The invention also relates to the sheet in the form of a single piece of punched and cut flexible material for forming a box provided with a rotatable free panel, as heretofore defined.

To clarify the structure and characteristics of the box and the sheet from which it is formed, a preferred embodiment is described hereinafter by way of non-limiting example with reference to the accompanying drawings in which:

Figure 1 is a plan view of a sheet of punched and holed cardboard for forming a box of rectangular cross-section provided with a supplementary panel;

Figures 2 and 3 are perspective views taken respectively from one side and the opposite side of the box obtained from the sheet of Figure 1, the supplementary panel being shown lowered onto the box and raised therefrom respectively; and Figures 4 and 5 are two schematic sections through the box, taken on the lines IV-IV and V-V of Figure 2 respectively.

Figure 1 shows, spread out in a single plane, a punched and cut single-piece cardboard sheet comprising four main panels 1, 2, 3 and 4 respectively, a gluing flap 5 and a supplementary panel 6, these being separated from each other by parallel creasing lines 7, 8, 9, 10 and 11 respectively. The panels 1 and 3 have exactly the same width and height (ie dimensions), as have the panels 2 and 4.

From the sides of the main panels there project tabs 12, 13, 14 and 15 and, respectively, side panels 16 and 17 connected to the respective main panels along creasing lines 18, 19, 20, 21, 22 and 23 perpendicular to the lines which separate the main panels from each other.

In the cardboard sheet, along the creasing line 11 there are provided elongate holes 24 which delimit appendices 25 by which the panel 6 is connected to the panel 1. Likewise, along the creasing line 10 there are provided elongate holes 26 which delimit appendices 27 by which the flap 5 is connected to the panel 4.

To form the box, the described sheet is folded in the conventional manner along the creasing lines 7, 8, 9, 10, and the outer face (with respect to Figure 1) of the flap 5 is glued to the inside of the main panel

1. In this manner (Figures 2 to 5) the creasing line 10 lies along the creasing line 11.

The holes 24 and 26 are mutually offset to define appendices 25 and respectively 27 of such a length that when the supplementary panel 6 is folded (along its creasing line 11) to lie on the outer face of the main panel 4 (Figures 2, 4 and 5), the appendices 25 are exactly superposed on the holes 26, whereas the holes 24 are exactly superposed on the appendices 27. It should be noted that the length of the holes 26 is equal to or greater than the width of the appendices 25 and that the length of the holes 24 is equal to or slightly greater than the width of the appendices 27.

In this manner, when the supplementary panel 6 is rested on the outer surface of the main panel 4 (onto which it can be glued at the appendix 30, which is separable from the panel 6 along the preformed tear-off line represented by dashes on the drawing), the height of the box at the two creasing lines which delimit the panel 1 is exactly equal to its height at the panel 3.

The sheet shown in Figure 1 can thus be formed into a box using conventional assembly machines without having to substantially modify them. After the flap 5 has been glued to the inside of the main panel 1 and the supplementary panel 6 has been rested on the outer surface of the main panel 4, the box (with its side panels open) can be pressed, ie folded along two opposing creasing lines, to assume a flat form which enables it to be packaged into packs for transport to the user.

Thus the presence, the arrangement and the sizing of the elongate holes 24, 26 enable boxes to be formed provided with supplementary panels (such as those indicated by 6 on the drawings) having practically the same dimensions as the boxes would have if the supplementary panel were not provided. In fact, the presence of the supplementary panel resting on the main panel 4 results in a thickness increase at this panel, but this does not cause problems because this thickness increase is absorbed by the flexibility of the panel 4.

Writing, illustrations or the like can thus be reproduced on both faces of the supplementary panel 6, so substantially enlarging the surface (that of the panels 1, 2, 3, 4, 16 and 17) on which writing could be otherwise reproduced on a box of conventional structure. In practice, the two surfaces of the supplementary panel 6 are available for printing, and can be equal in size to the largest panel (2 or 4) of the box. Such printed matter, accessible to the box user, can comprise bilingual or multilingual instructions or information, this being very important if the product contained in the box is to be sold in a number of countries of different languages.

The best results are obtained if said elongate holes 24, 26 are provided, but it is apparent that the present invention also covers the case in which said

holes are not provided.

It is also apparent that boxes provided with the rotatable supplementary panel can be of any cross-section, for example triangular, quadrangular or polygonal, ie they can comprise three or more than three main consecutive panels.

Claims

1. A box formed from a single sheet of flexible punched and cut material, the box having a substantially polygonal cross-section with at least three consecutive main panels (1 to 4) and a flap (5) projecting from one of these, said panels and the flap being separated from each other along parallel creasing lines (7 to 10), the flap (5) being glued to the inside of that main panel (1) which on the sheet forming the box is furthest from that main panel (4) from which said flap (5) projects, the box comprising tabs (12 to 15) and side panels (16,17) for closing the box which project laterally from the main panels (1,3,4) and are connected to said main panels along creasing lines (18 to 23) perpendicular to the creasing lines (7 to 10) which separate the main panels (1 to 4) and the flap (5) from each other, a supplementary panel (6) projecting from said furthest main panel (1) and separated from it along a creasing line (11) which is parallel to the creasing lines (7,8,9) which separate the main panels (1 to 4) from each other, and is superposed on the creasing line (10) which separates said flap (5) from the main panel (4) from which said flap projects, the supplementary panel (6) being rotatable about its own creasing line (11) between a position in which the supplementary panel (6) rests on the main panel (4) from which said flap (5) projects, and a position raised therefrom, characterised in that elongate holes (24,26) are provided in the flexible material sheet along said creasing lines (11,10) separating said supplementary panel (6) and respectively said flap (5) from the respective main panels (1,4) from which they extend, said holes (24,26) delimiting connecting portions (27,25) which connect said flap (5) and the panel (6) to the relative main panels (4,1) respectively, the holes provided along one creasing line being offset from those of the other creasing line and their length being at least equal to the width of the connecting portions on which said holes are superposed.

2. A box as claimed in claim 1, characterised in that a plurality of said holes (24,26) are provided to delimit a plurality of said connecting portions (27,25).

3. A sheet in the form of a single piece of punched

and cut flexible material for forming a box provided with a supplementary panel (6) rotatable between a position in which it rests on a main panel (4) of the box and a position raised therefrom, said sheet comprising at least three consecutive main panels (1 to 4) and a flap (5) projecting from one of these, said panels and the flap being separated from each other along parallel creasing lines (7 to 10), and comprising tabs (12 to 15) and side panels (16,17) for closing the box which project laterally from the main panels (1,3,4) and are connected to said main panels along creasing lines (18 to 23) perpendicular to the creasing lines (7 to 10) which separate the main panels (1 to 4) and the flap (5) from each other, a supplementary panel (6) projecting from that main panel (1) furthest from that main panel (4) from which said flap (5) projects the supplementary panel (6) being separated from such main panel (1) along a creasing line (11) which is parallel to the creasing lines (7,8,9) which separate the main panels (1 to 4) from each other, characterised in that at and along the creasing lines (10,11) which separate said flap (5) and, respectively, said supplementary panel (6) from the main panels (4,1) adjacent to them there are provided elongate holes (26,24), of which those on one creasing line are offset from those on the other creasing line, and which delimit respective connecting portions (27,25) having a width equal to or less than the length of said holes (24,26) provided in the other respective creasing line (11,10).

Patentansprüche

1. Schachtel, gebildet aus einem einzigen Blatt aus flexiblem gestanzten und geschnittenen Material, wobei die Schachtel im wesentlichen polygonalen Querschnitt mit mindestens drei aufeinanderfolgenden Hauptplatten (1 bis 4) und einer von einer von diesen abstehenden Klappe (5) aufweist, die Platten und die Klappe entlang paralleler Faltlinien (7 bis 10) voneinander getrennt sind, die Klappe (5) an die Innenseite derjenigen Hauptplatte (1) angeklebt ist, die an dem die Schachtel bildenden Blatt am weitesten von derjenigen Hauptplatte (4) entfernt ist, von der die Klappe (5) absteht, die Schachtel Laschen (12 bis 15) und Seitenplatten (16,17) zum Schließen der Schachtel aufweist, die seitlich von den Hauptplatten (1,3,4) abstehen und mit den Hauptplatten entlang von Faltlinien (18 bis 23) verbunden sind, die rechtwinklig zu den die Hauptplatten (1 bis 4) und die Klappe (5) voneinander trennenden Faltlinien (7 bis 10) verlaufen, eine zusätzliche Platte (6) von der genannten am weitesten entfernten Hauptplatte (1) absteht und von dieser entlang ei-

ner Faltlinie (11) getrennt ist, die parallel zu den die Hauptplatten (1 bis 4) voneinander trennenden Faltlinien (7,8,9) verläuft und über diejenige Faltlinie (10) gelegt wird, die die Klappe (5) von derjenigen Hauptplatte (4) trennt, von der die Klappe absteht, die zusätzliche Platte (6) um ihre eigene Faltlinie (11) zwischen einer Position, in der die zusätzliche Platte (6) auf derjenigen Hauptplatte (4) aufliegt, von der die Klappe (5) absteht, und einer davon abgehobenen Position schwenkbar ist,

dadurch gekennzeichnet,

daß in der flexiblen Materialbahn Langlöcher (24,26) entlang derjenigen Faltlinien (11,10) vorgesehen sind, die die zusätzliche Platte (6) bzw. die Klappe (5) von den jeweiligen Hauptplatten (1,4) trennen, von denen sie absteigen, wobei die Löcher (24,26) Verbindungsbereiche (27,25) begrenzen, die die Klappe (5) und die Platte (6) jeweils mit den betreffenden Hauptplatten (4,1) verbinden, wobei die entlang einer Faltlinie vorgesehenen Löcher zu denen der anderen Faltlinie versetzt sind und ihre Länge mindestens gleich der Breite derjenigen Verbindungsbereiche ist, an denen die Löcher aufliegen.

2. Schachtel nach Anspruch 1, dadurch gekennzeichnet, daß mehrere der Löcher (24,26) derart vorgesehen sind, daß sie mehrere der Verbindungsbereiche (27,25) begrenzen.

3. Blatt in Form eines einzigen Stückes aus gestanztem und geschnittenen flexiblen Material, zur Bildung einer Schachtel, die eine zusätzliche Platte (6) aufweist, die zwischen einer Position, in der sie auf einer Hauptplatte (4) der Schachtel aufliegt, und einer davon abgehobenen Position schwenkbar ist, wobei das Blatt mindestens drei aufeinanderfolgende Hauptplatten (1 bis 4) und eine von einer von diesen abgehobene Klappe (5) aufweist, die Platten und die Klappe entlang von parallelen Faltlinien (7 bis 10) voneinander getrennt sind, und das Blatt Laschen (12 bis 15) und Seitenplatten (16,17) zum Schließen der Schachtel aufweist, die seitlich von den Hauptplatten (1,3,4) absteigen und mit den Hauptplatten entlang Faltlinien (18 bis 23) verbunden sind, die rechtwinklig zu den die Hauptplatten (1 bis 4) und die Klappe (5) voneinander trennenden Faltlinien (7 bis 10) verlaufen, wobei eine zusätzliche Platte (6) von derjenigen Hauptplatte (1) absteht, die am weitesten von derjenigen Hauptplatte entfernt ist, von der die Klappe (5) absteht, die zusätzliche Platte (6) von dieser Hauptplatte (1) entlang einer Faltlinie (11) getrennt ist, die parallel zu denjenigen Faltlinien (7,8,9) verläuft, die die Hauptplatten (1 bis 4) voneinander trennen, dadurch gekennzeichnet, daß an und entlang den

Faltlinien (10,11), die die Klappe (5) bzw. die zusätzliche Platte (6) von den diesen benachbarten Hauptplatten (4,1) trennen, Langlöcher (26,24) vorgesehen sind, von denen diejenigen, die sich an der einen Faltlinie befinden, zu denjenigen versetzt sind, die sich an der anderen Faltlinie befinden, und die jeweilige Verbindungsbereiche (27,25) begrenzen, deren Breite gleich oder geringer ist als die Länge der in der jeweils anderen Faltlinie (11,10) vorgesehenen Löcher (24,26).

Revendications

1. Boîte, formée à partir d'une seule feuille en une matière flexible, perforée et découpée, cette boîte ayant une section transversale sensiblement polygonale et comportant au moins trois panneaux principaux consécutifs (1 à 4) et une patte (5) qui fait saillie de l'un d'eux, lesdits panneaux et la patte étant séparés entre eux par des lignes de pliage parallèles (7 à 10), la patte (5) étant collée sur la face intérieure du panneau principal (1) qui, sur la feuille à partir de laquelle la boîte est formée, est la plus éloignée du panneau principal (4) duquel fait saillie ladite patte (5), la boîte comportant des languettes (12 à 15) et des panneaux latéraux (16, 17) pour fermer la boîte, ces panneaux latéraux faisant saillie latéralement des panneaux principaux (1, 3, 4) et étant reliés auxdits panneaux principaux par des lignes de pliage (18 à 23) perpendiculaires aux lignes de pliage (7 à 10) qui séparent les panneaux principaux (1 à 4) et la patte (5) entre eux, ainsi qu'un panneau supplémentaire (6) qui fait saillie du panneau principal le plus extrême (1) et est séparé de celui-ci par une ligne de pliage (11) qui est parallèle aux lignes de pliage (7, 8, 9) qui séparent les panneaux principaux (1 à 4) entre eux et qui se superpose à la ligne de pliage (10) qui sépare la patte (5) du panneau principal (4) duquel fait saillie ladite patte (5), le panneau supplémentaire (6) pouvant pivoter autour de sa ligne de pliage (11) entre une position où le panneau supplémentaire (6) est en appui contre le panneau principal (4) duquel fait saillie la patte (5) et une position où il est soulevé par rapport audit panneau, caractérisée en ce que des trous allongés (24, 26) sont prévus dans la feuille en matière flexible le long des lignes de pliage (11, 10) qui séparent ledit panneau supplémentaire (6) et la patte (5) respectivement des panneaux principaux (1, 4) desquels ils font saillie, lesdits trous (24, 26) délimitant des portions de connexion (27, 25) qui relient la patte (5) et le panneau (6) aux panneaux principaux (4, 1) associés respectifs, les trous prévus le long d'une ligne de pliage étant décalés

par rapport à ceux de l'autre ligne de pliage et leur longueur étant au moins égale à la largeur des portions de connexion sur lesquelles les trous sont superposés.

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2. Boîte selon la revendication 1, caractérisée en ce qu'une pluralité de ces trous (24, 26) est prévue pour délimiter une pluralité de portions de connexion (27, 25).
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3. Feuille en une seule pièce, réalisée en une matière flexible, perforée et découpée, en vue de former une boîte comportant un panneau supplémentaire (6) qui peut pivoter entre une position où il est en appui contre le panneau principal (4) de la boîte et une position où il est soulevé par rapport à celui-ci, ladite feuille comprenant au moins trois panneaux principaux consécutifs (1 à 4) et une patte (5) qui fait saillie par rapport à l'un d'eux, lesdits panneaux et ladite patte étant séparés entre eux par des lignes de pliage parallèles (7 à 10) et comprenant des languettes (12 à 15) et des panneaux latéraux (16, 17) pour fermer la boîte qui font saillie latéralement des panneaux principaux (1, 3, 4) et sont reliés auxdits panneaux principaux par des lignes de pliage (18 à 23) perpendiculaires aux lignes de pliage (7 à 10) qui séparent entre eux les panneaux principaux (1 à 4) et la patte (5), un panneau supplémentaire (6) faisant saillie du panneau principal (1) le plus éloigné du panneau principal (4), duquel fait saillie la patte (5), le panneau supplémentaire (6) étant séparé de ce panneau principal (1) par une ligne de pliage (11) parallèle aux lignes de pliage (7, 8, 9) qui séparent entre eux les panneaux principaux (1 à 4), caractérisée par le fait que des trous allongés (26, 24) sont prévus dans et le long des lignes de pliage (10, 11), qui séparent respectivement la patte (5) et le panneau supplémentaire (6) des panneaux principaux (4, 1) qui leur sont adjacents, les trous dans une ligne de pliage étant décalés par rapport à ceux de l'autre ligne de pliage et délimitant des portions de connexion respectives (27, 25) dont la largeur est égale ou inférieure à la longueur desdits trous (24, 26) prévus dans l'autre ligne de pliage respective (11, 10).
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